



VOICE SIGNAL ANALYSIS WITH LABVIEW

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ABSTRACT

This article describes some practical examples of voice signal analysis by using the Advanced Signal Processing toolkit, known as LabView. The voice has a large information capacity, so in this paper we design some LabView algorithms to diagnose the most important characteristics and properties of the signal.

KEYWORDS: Voice Signal Analysis, LabView algorithms

INTRODUCTION

When we speak the vocal cord vibrate periodically to generate glottal flow. The period of a glottal pulse is the pitch period. The reciprocal of the pitch period is the pitch, also known as the fundamental frequency. The characteristics of the vocal

tract include the frequency response, which depends on the position of the organs. The peak frequencies in the frequency response, which depends on the position of the vocal area are formants, known as the formant frequency. In the figure below we show the formation of a voiced signal processing.

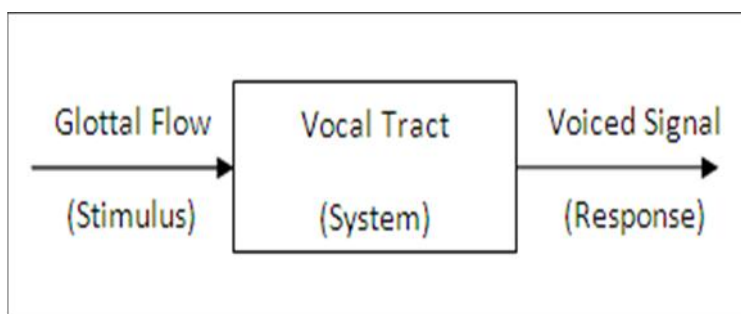
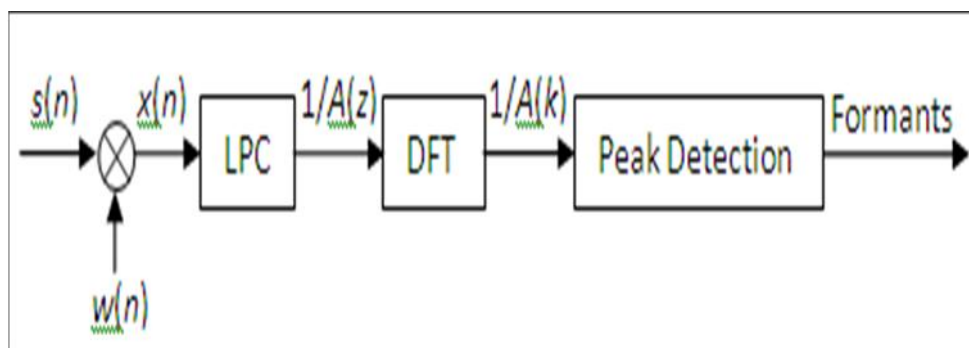


Figure 1: Signal processing view of a voiced signal

EXPERIMENTS AND RESULTS

We conduct some experiments in order to show the importance of pitch and formants in the voice of a living

person. To detect formants and pitch we will be using LabView. One of the methods [1] is the Linear Prediction Coding (LPC). This method is shown in the figure below:



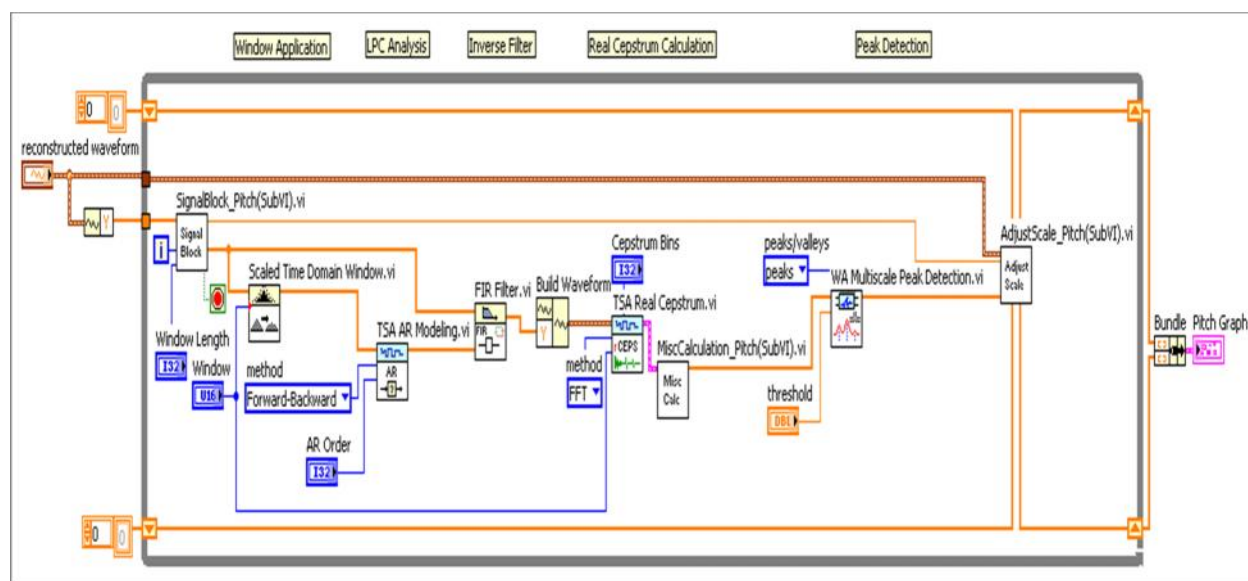


Figure 5: Pitch Detection with the LPC Method by Using LabVIEW

CONCLUSION

By using the Lab View we have made very easy and very comfortable to study the voice characteristics such as formants and pitch. Formants and pitch are very useful today in clinical diagnosis. The time elapsed to compute the characteristics of the voice signals is very short and the Method is very comfortable. From now on we can use this algorithms for every case if we want to study the formants and the pitch of the voice signal.

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